

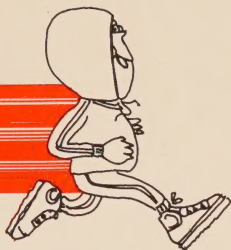
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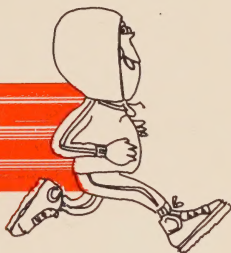
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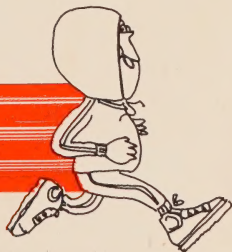
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# Fitness



## Questions and Answers





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# **Fitness**

## **Questions and Answers**

Increasing numbers of Canadians are realizing the many benefits of maintaining a healthy level of physical fitness.

Getting into shape is a great idea, but whenever embarking on a fitness program it's important to know the facts. For instance, are you on the right program, doing the right exercises for the right reasons?

Besides providing ideas for fitness opportunities, the information contained in this booklet should be helpful in answering the most commonly asked questions about fitness.

The questions and replies have been assembled in the following categories:

- a) **Prescription of Exercise**
- b) **Choosing an Exercise Program**
- c) **Weight Control**
- d) **Specific Situations**
- e) **Female Physiology**
- f) **Starting an Exercise Program**

For further information on Fitness, write to:

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Ottawa, Ontario  
K1A 0X6

## **a) Prescription of Exercise**

### **1) Is a warmup really necessary before heavy exercise?**

In order to prepare the body for strenuous work, a good warmup is highly recommended. A combination of rhythmical and relaxed activities — walking, slow jogging, arm circles, etc. — will stimulate circulation and raise body temperature, thereby warming the muscles in preparation for the stretching to follow. This aspect, combined with stretching of ligaments and mobilization of joints, is helpful in the prevention of muscle soreness or injury during heavier exercise. The length of the warmup depends on the type of activity to follow, but 5-8 minutes should be considered the minimum necessary.

### **2) How often do I need to exercise? and for how long?**

The ideal situation for improving overall fitness would be to exercise every day for 30 minutes or more; however, the minimum exercise requirement to show a significant increase in fitness is 3 times per week for 30 minutes each time. Of this 30 minutes, at least one quarter hour should be relatively high intensity exertion (based on "target" heart rate as per #3 below). This portion should always be preceded by an adequate warmup, and followed by a "cooling down" period of about 5 minutes of lessened activity. The exercising should be continuous for the entire half hour or more, and the intensity of the individual exercises should be increased week to week. One common misconception is that an extra-long bout of heavy exercise once per week can take the place of the 3 times per week program. However, the effects of an exercise period are lost within a few days, unless the exercise is repeated.

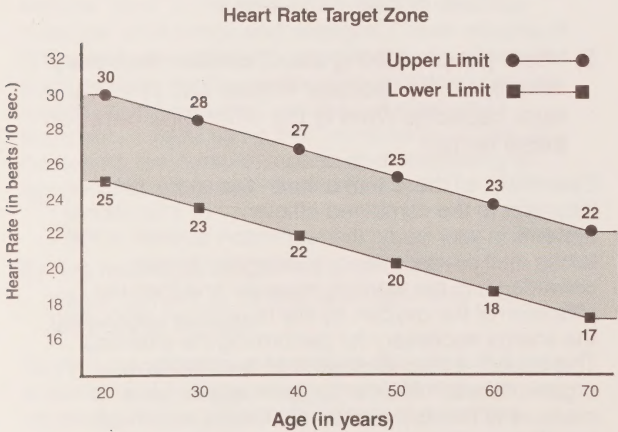
### **3) How can I tell if I'm exercising hard enough?**

It is relatively simple to assess whether or not you are working hard enough to improve your cardio-respiratory fitness. When beginning your program, determine your Heart Rate Target Zone and monitor

your heart rate at intervals throughout each exercise period. The quickest method is to stop and take your pulse for 10 seconds, and then continue exercising immediately so as not to lose the sustained nature.

The diagram below describes the principle of the heart rate target zone. The following general guidelines may be used for computing your personal target zone.

Above the upper limit there is little added benefit from increasing the intensity of the exercise; below the lower limit the intensity of the exercise is insufficient to adequately improve cardio-respiratory fitness. Remember that you should spend a minimum of 15 minutes within the heart rate target zone to achieve a significant conditioning effect on the cardiovascular system. Beginners should attempt to maintain a heart rate close to the lower limit. As your fitness level increases you may elect to go to higher rates within the target zone.





With respect to improving muscle “tone” and flexibility, you should be aware of the “overload” principle: at regular intervals, you must challenge specific muscle groups beyond that which is easy for you. This can be done by increasing the number of repetitions of a certain exercise, or by increasing the speed with which you perform the exercise, or a combination of both. You should try to increase the workload gradually, but without undue strain or fatigue.

#### **4) Is there such a thing as exercising too hard?**

In most cases, you are the best judge of your own personal limitations. However, in a group or class situation it is easy to become competitive, and pushing yourself too hard when first beginning a program can result in very painful muscle soreness or cramps. At the beginners' level, a good workout will leave you with some mild stiffness and soreness in those muscles unaccustomed to activity, and only if the soreness causes real discomfort should you consider it a result of overexertion.

#### **5) I hear people talking about cardio-respiratory fitness, cardio-vascular fitness and physical work capacity. What is the difference between these terms?**

Essentially, all these terms mean the same thing — they refer to the combined efficiency of 3 functional systems in your body: the respiratory system in the taking in of oxygen, the circulatory system in delivering it to the working muscles and then the utilization of the oxygen by the muscles in producing the energy necessary for performing the exercise. This aspect is also referred to as aerobic fitness, organic fitness, maximal oxygen uptake (as a measure of fitness), endurance fitness, and heart-lung fitness. Probably the most commonly used term is cardio-respiratory fitness.

## **6) What is meant by the term “Aerobic” exercise?**

The term “aerobics” has become popular in describing those types of exercises and activities which improve cardio-respiratory fitness: that is, efficiency of oxygen uptake and utilization. These include total-body activities that are of a sustained and continuous nature in order to challenge the cardiovascular and respiratory systems.

## **7) What is the difference between exercises for flexibility, and those done to improve “muscle tone”?**

Flexibility refers to joint mobility; that is, the total range of movement in body joints. To improve this component, exercises should stress the stretching of muscles, and bending and twisting movements, in order to use all joints as fully as possible. Flexibility exercises should be smooth and rhythmical in nature, rather than jerky.

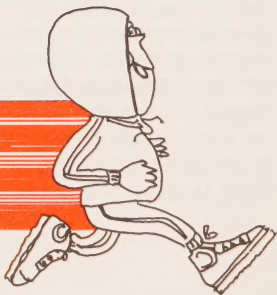
Muscle “tone” is the term often used to describe muscular endurance and strength. These aspects of fitness require exercising specific muscle groups for short periods of time, as opposed to the sustained total-body movement of aerobics. A graduated approach is best, using the “overload” principle of increasing the duration, speed and complexity of specific exercises from time to time.

## **8) Are massage machines and vibrator belts of much benefit in reducing weight and improving fitness?**

There is no scientific evidence to show that this type of equipment has any effect on weight reduction, or improving fitness. The main benefit of machines which do the work for you is the largely psychological feeling of relaxation and comfort produced. This can be a very helpful thing for persons who tend to react to stress by tightening up various muscles in the body (e.g. neck and shoulder muscles).

9) Is it true that wearing a heavy or rubberized sweatsuit to increase sweating while jogging (or exercising) is beneficial?

In most cases, it would not be of any benefit, and may in fact be dangerous. A rubberized suit prevents heat loss by evaporation, and the body compensates by sending blood to the body surface as a cooling process. This takes blood away from the major muscles that need it more, thereby causing the heart to pump faster and work harder than necessary. Since sweat in itself is not an indication of training effect or weight loss, it is unnecessary to attempt to produce it artificially.

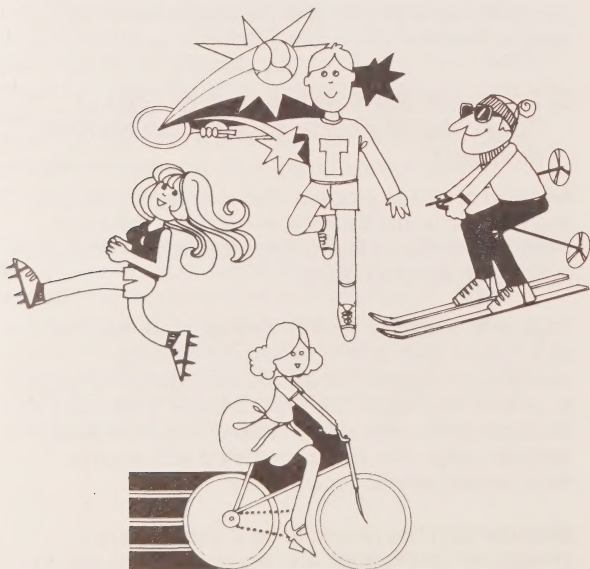




## b) Choosing an Exercise Program

### 1) What can I do to improve my cardio-respiratory fitness?

Choose an activity which fulfills 3 criteria: it can be done regularly, it entails continuous movement, and most of all, it is enjoyable. Provided they are done vigorously, the following activities are aerobic in nature — cycling, swimming, canoeing, rowing, cross-country skiing, tennis, walking, squash, jogging, soccer, etc. Sports where the movement is not continuously vigorous will not provide as good a vehicle for improving cardio-respiratory fitness. These include activities such as downhill skiing, water-skiing, volleyball, badminton. Farther down the line are the relatively passive activities such as bowling, curling, fishing, golf, etc. which will have very little effect on aerobic fitness.



## **2) What kind of exercise is best for losing weight?**

In a weight reduction program, the main concern should be that more calories are burned up daily than are ingested in food. Calorie expenditure is cumulative, so whether you exercise for 1 minute 60 times during the day, or exercise for one hour continuously once per day, the net effect would be the same with respect to number of calories burned. The important implication is that most daily activities such as climbing stairs, lifting boxes, walking the dog, mowing the lawn, etc., can be put to use in a weight reduction program.

Excess calories can be used up through other mild exercise such as walking, golf, curling, and so on, over a period of time. It must be remembered, however, that these activities are not as valuable for producing fitness as more active sports would be. Naturally, activities such as jogging, tennis and cycling burn up calories much more quickly since they are more vigorous, and the added benefit is aerobic fitness.

## **3) Do specialized activities such as Yoga or Belly-dancing provide an adequate exercise program?**

Any kind of fitness program that is enjoyable for you, and that you would be likely to continue, will be of more benefit than a more complete program that you might drop out of too soon!

Yoga is an excellent activity for improving flexibility and muscle tone, and for learning complete relaxation. However, it is usually not vigorous enough to provide the higher "target heart rate" necessary to produce cardio-respiratory fitness. As part of a total program, yoga should be combined with another, more active, aerobic-type activity.

Belly-dancing has proved to be a tremendous conditioner for the trunk and leg muscles, as well as improving coordination and rhythm. Although it is generally a more vigorous activity than yoga, it still may not fulfill all the requirements for a good aerobics program and thus should perhaps be supplemented by exercise such as walking or jogging.



#### 4) How do I know if a particular Health Spa or Club is a good one?

Your evaluation of a Health Club should depend on the specific results you want to achieve. If you desire a comfortable and relaxing atmosphere, with whirlpool baths, saunas, sunlamps, etc., the benefits might be total relaxation, some mild exercise, with the wet or dry heat helping to soothe tense or sore muscles. For this type of program, it is not necessary to have professional physical educators as the instructors.

On the other hand, if you want a sound and complete fitness testing and exercise program, be sure that the instructor or supervisor is well-qualified in these areas, and find out if your personal program will consist of a graduated series of exercises including a strong aerobic element. Many health clubs skip the trimmings such as carpets and soft music, but still offer a good all-round program.

## c) Weight Control

### 1) How can I tell if I'm overweight?

Be careful not to confuse a heavy body weight due to a large bone structure or well-developed muscles, with a heavy body weight caused by excess fat. Height-weight charts can be misleading, so many doctors say that a mirror is still the best indicator of whether or not you have excess fat.

There is no physiological reason for gaining weight as you get older, so if you were happy with your appearance and weight in your twenties, that should be your "ideal" weight later on as well.

Some health clubs and fitness programs offer fitness testing which includes a fairly accurate estimation of percentage body fat. If you are very interested in this aspect, it may be worth your while to search out an agency in your community which offers this service. One rough estimate of over-fatness is to pinch the fat folds at your waist and abdomen — if you can pull away an inch or more of fat from the muscle, chances are you have excess body fat.

### 2) How can I get rid of flab on my thighs? (or abdomen, or etc.)

Simply exercising one area of the body excessively will not necessarily reduce the fatty tissue in that specific area. When you do any type of exercise, you burn up calories, and thus the fat deposits will be depleted from the areas where they are unnecessary. However, you cannot control which deposits diminish first, since there must be an overall reduction in body fat through caloric expenditure. Spot reduction is a popular misconception.

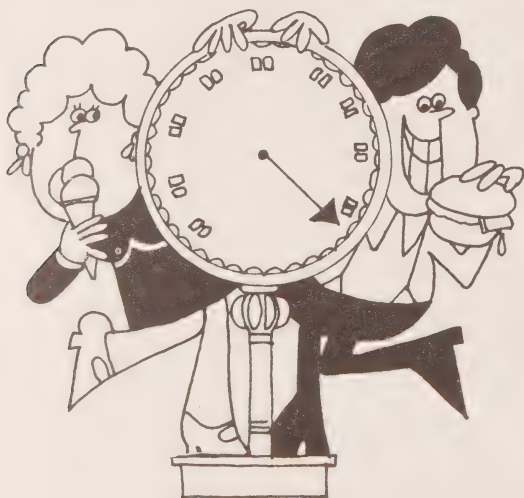
By exercising a specific part of the body (eg. thighs) you can improve the muscle tone considerably, which will increase the firmness of the muscle and enhance appearance.

### 3) I have been exercising regularly for 3 months and have not lost any weight. Why is this?

By exercising regularly, you have been building up muscle tissue as the strength of your muscles increases, and since muscle weighs more than fat, this has compensated for the fat you probably have been losing. The density of your muscle fibres has been increasing with the exercise, but since this is difficult to measure, the easiest way to tell if you have been losing fat is to measure your waist circumference regularly. This area usually shows the most dramatic decrease in fat deposits.

### 4) If I exercise more, won't this increase my appetite and just make me eat more?

Initially, you may notice an increase in appetite, but this should be offset by the number of calories you burn up in exercise. As your exercise intensity increases, your appetite does not increase as much, and thus you can easily widen the gap between the number of calories ingested in food and the number expended by exercise. At the start of an exercise program you may even note a slight increase in body weight. This is usually *not* due to increased fat, but rather to an increase in muscle mass (which weighs more than fat) as a result of the exercises for specific muscle groups.





## 5) What is the best way to lose weight?

An important point to remember is that in most cases the faster you lose weight, the faster you gain it back! The best method is a gradual approach — first, calculate your general *caloric balance* by counting your average total number of calories taken in per day compared to the number expended. Then plan for some reduction in the number of calories you are ingesting daily, and develop a wise and realistic plan for increasing the calories burned up. Everyday activities such as housework, climbing stairs, cycling to work, etc. can be incorporated as part of your exercise plan, and supplemented by actual calisthenics and aerobic activities such as jogging, brisk walking, or swimming.

If you are serious about losing weight and keeping it off, make a commitment to simple changes in your daily activities, such as leaving out the second before-dinner cocktail, walking the dog more often, walking instead of driving to the grocery store, and so on.

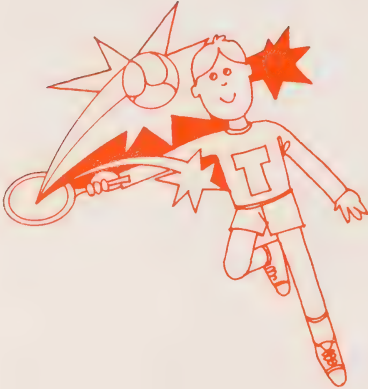
## 6) What kind of diet is best for weight reduction?

A person with a serious weight problem should be under a doctor's supervision while dieting. For others, a general plan of cutting down on calorie intake, coupled with increasing calorie output through physical activity, is by far the best approach. There is really no need to embark on an extremely one-sided diet, and in fact, low carbohydrate and low protein diets can be nutritionally dangerous if followed for too long. A good diet for reducing weight can still fulfill all the daily adult requirements as outlined in the Canada Food Guide.

“Crash” diets and diet pills may cause serious malnutrition, with side-effects such as fatigue, dizziness, loss of energy, etc., if used indiscriminately. It is simpler to change your general eating habits slightly than to try to diet for the rest of your life.

7) Are gadgets such as inflated belts and “sauna” shorts good for losing weight?

No, since there is no lasting effect. Excessive sweating causes a temporary loss of water from the tissues in a particular area of the body, and may result in a temporary decrease in a measurement such as waist circumference. However, the normal body processes replace the tissue fluid within 48 hours, so there is essentially no change whatsoever in the size of fat deposits or in body weight.



## d) Specific Situations

### 1) I have periodic backaches in my lower back. Should I still exercise?

Check first with your doctor to determine if the problem is muscular or skeletal in nature. If the pain is caused by poor muscular development, it could be due to a number of things. Weak abdominal muscles which allow the abdomen to sag forward can put stress on the lower back. Similarly, poor posture may cause the pelvis to tilt, thereby putting undue strain on the lower back. If you are in a desk-job where the hamstrings in the backs of the thighs are shortened from prolonged sitting, this may cause referred pain to the lower back when you are in a standing position.



In all of these cases, specific exercises should be done to strengthen abdominal and back muscles, and increase the flexibility of the hip joint by exercises which stretch the hamstring muscles. More generally, you can undertake any physical activity, in moderation at first, and find that it will probably significantly decrease the incidence of lower back pain.

### 2) I have a chronic knee problem (or any other joint or muscle problem) — what kind of exercise could I do?

The most comfortable yet beneficial way would probably be to exercise in water. The principle is that the buoyancy of the water relieves stress on the joints, and prevents muscle strain and soreness. For persons with any type of joint or muscular problem, the water medium makes exercising far easier. To increase fitness, the exercises must be done according to the same rules concerning duration and intensity of exercises in general. Aquatic exercises

are usually done in the shallow end of the pool, and can be interspersed with periods of swimming lengths of the pool or kicking with a flutterboard (for non-swimmers) to include an aerobic workout. If a group program is preferred, many YM-YWCA's and community recreation departments offer these programs under the name of "Aquabics" or "Aquasizes".

### 3) What are the effects of aging on one's cardio-respiratory fitness?

For the average population, there is a gradual decline in maximal oxygen uptake, the common measure of cardio-respiratory fitness, with increasing age after about 40 years. However, an active, fit individual of 50 or 60 years of age can still maintain a fitness level *far superior* to an average sedentary person of 25. It may take an older man or woman slightly longer to achieve a high fitness rating at age 50 than their younger counterparts, but age is certainly no restriction on attaining and keeping a superior fitness level.

### 4) Does smoking have much effect on a person's cardio-respiratory fitness?

Many studies have been done comparing smokers and non-smokers with respect to capacity for increasing aerobic fitness. In the majority of cases, the capacity for improving cardio-respiratory fitness was significantly greater for non-smokers than for smokers, and even though smokers can improve their fitness greatly with training, non-smokers are able to improve their cardio-respiratory fitness levels by 5-10% *more*. Of course, in highly skilled athletes engaged in endurance sports events, these differences become much more significant with respect to the oxygen-transporting capacity during physical effort.

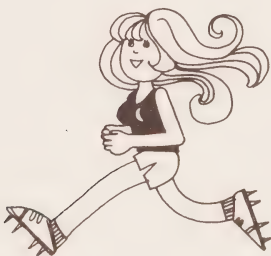
## e) Female Physiology

### 1) Should I continue to exercise during my menstrual period?

Yes — unless there is a pathological reason for extreme cramps and discomfort, in which case you should consult your doctor. The majority of women find that moderate exercise helps to relieve cramps by improving circulation in the pelvic region. As well, an enjoyable physical activity invariably gives a psychological “lift” which can overshadow physical discomfort.

### 2) Is it true that women shouldn't exercise as hard as men?

There has long been a traditional belief that women are “fragile” compared to men. While it is true that certain joints and musculatures (eg. shoulder girdle, ankle) are somewhat weaker in women, there is no reason why women cannot exercise as hard as men, or play most sports that men play. Certain contact sports can be more injurious to women in terms of knee and ankle injuries, but there is no difference when it comes to individual recreational sports. One thing that should be remembered is that while men may be more interested in developing muscular strength and muscle mass, and women might want to improve flexibility and muscle tone, both need to be equally concerned with aerobic fitness — and here, the sex differences are not important for the average person.





### 3) Is it safe to exercise during pregnancy?

You should consult with your doctor about this first. If you have not been exercising regularly before pregnancy, it would be unwise to start a heavy exercise program. If you are already on a regular fitness program, however, it is most beneficial to continue your program, and add special prenatal exercises.

Studies show that physically active fit women usually have easier pregnancies, and shorter, much easier labour. Depending on the individual woman, the exercise program can be moderately vigorous up to 6 months, and then light to the end of pregnancy. Naturally, exercises requiring heavy use of the abdominal area should be avoided.

## f) Starting an Exercise Program

### 1) Do I need to consult my doctor before beginning a fitness program?

No, unless you have reason to believe you should. If you have a history of medical problems, or if you have doubts about your ability to handle moderate exercise, check with your doctor. No matter what kind of exercise program you choose, start slowly and progress gradually to prevent the possibility of injury or muscle soreness.

### 2) Is it better to join a group program than to start on my own?

This depends entirely on your personality — whether you are the kind of person who thrives on the continued support and encouragement of a group and an instructor to motivate you, or you prefer to set your own schedule and are capable of following it through alone. The majority of people seem to perform better with reinforcement from another person or a group.

In either situation, try to supplement your personal exercise program with enjoyable recreational sports you can do with your family or friends. Remember the exercise should not be a chore for you, or you probably will not continue for very long.

### 3) Where could I go to join an exercise class?

Depending on the size of your community, you may or may not have a great deal of choice of organized fitness programs. The following groups and agencies are suggested as places to make enquiries concerning programs: YM-YWHA; YMCA; YWCA; Municipal recreation departments; adult education programs (enquire through local school board); health clubs or spas; universities or community colleges; independent programs (eg. in church halls, etc.); community centres; large office buildings.

As well, most communities have independent recreational sports clubs which provide instruction and activities in sports such as skiing, badminton, tennis, camping, hiking, and so on. These clubs usually advertise in the paper at the start of their activity season.

#### **4) What recreational facilities are generally available to me in the community?**

This depends greatly on the size and geographical location of your city or town. Most cities have public facilities such as swimming pools, tennis courts, parks for jogging, baseball diamonds, playing fields, and skating arenas. In addition, conservation or reforestation areas close to town often have miles of trails for walking, hiking, or orienteering. Cross-country ski trails are becoming very common in conservation areas and other parks. Larger cities may have special bicycle paths, while small towns can provide quiet backstreets just as suitable for cycling.

#### **5) How much does it cost to begin an exercise program?**

This depends entirely on the sophistication of the activity you choose to do. If you start your own jogging program, it is advisable to buy a top-quality running shoe with good arch and heel supports (in the range of \$40-\$70), but this would be the only cost to you. A group fitness program can range from about \$15 for evening classes at a school gymnasium, to perhaps \$50 for a regular program twice per week at a community centre.

Some agencies such as the YM-YWCA often charge a yearly membership fee, but this gives the added benefit of the full use of squash courts, swimming pool, lounges, and so on. Private health club memberships range from approximately \$200-\$400, depending on the facilities available.

Tennis clubs also vary greatly with respect to membership fees — from \$30 for use of tennis courts only, to \$400 for a fancy club with pools, sauna, lounges, etc. Most cross-country ski clubs have nominal membership fees, but you may have to spend from \$100-\$200 for good equipment. If you are not sure about investing in ski equipment, it may be advisable to rent equipment a few times before deciding whether or not to buy. Most downhill skiing resorts also rent cross-country skis for a reasonable fee.

Walking is probably the cheapest exercise program, and does not require any specialized facilities. Supplemented by a daily home exercise session, this can be a good start toward better fitness.



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